CLAIMS

1. A method in an transmitter (11) of a multi-carrier system (10), said transmitter (11) transmitting one or more data streams over a set of M antennas (13) to a plurality of mobile terminals (12),

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transmitting a number of pilot sequences comprising an ordered set of symbols, wherein each symbol is associated with a predetermined time and frequency resource and a complex transmission weight for each antenna,

adapting the transmission weights associated to the pilot sequences to achieve an optimisation of an objective function of the set of quality indicators, which the mobile terminals (12) have derived from measurements of at least one downlink channel property,

transmitting said pilot sequences with the adapted transmission weights,

transmitting one or several information streams using the one or several of the adapted transmission weights.

2. The method according to claim 1, whereby the transmission weights are adapted to be applicable for a multicast transmission of information that is common to one or more selected groups of users.

3. The method according to claim 1, whereby the set of transmission weights is adapted so that at least a subset of weights is applicable for a transmission of information to selected users at selected instances.

4. The method according to claim 1, whereby a first subset of the transmission weights is adapted according to claim 2

and a second subset of transmission weights is adapted according to claim 3.

5. The method according to one of the preceding claims, whereby the procedure is carried out multiple times.

5   6. The method according to one of the preceding claims, whereby the step of adapting the transmission weights implies the steps of

applying current and previous measurement reports and transmission weights to derive a subset of best weights,

10   using said subset to generate the adapted transmission weights.

7. The method according to claim 6, whereby the adapted transmission weights are generated by means of a linear combination of said best subset of best weights in
15   combination with a random perturbation.